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IN THIS ISSUE

Hattie Hicks Sweets Company, by Clinton W. Bennett and Wyman P. Fiske 1065

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EDITORIAL DEPARTMENT NOTE

One of the great needs in American industry today is more adequate cost information and control in the small and medium-sized plants. The great mortality among the smaller concerns points to the need for better methods. The threat to all of the members of an industry of the price-cutting competitor who operates without knowledge of costs is well known. Accountants, especially public accountants, have not given enough consideration to the problems of the small concern. It is no simple task to design a system which is sufficiently simple and inexpensive for the small concern and at the same time complete enough to provide a continuous flow of essential accounting data. For this reason we are especially pleased to present in this issue of the Bulletin a case study describing the various steps in the design of a cost system for a small confectionery company.

The co-authors of this article are well known to readers of the N. A. C. A. Bulletins, both having contributed articles in the past. Wyman P. Fiske, one of the two collaborators, is a graduate of Harvard College and of the Harvard Business School. He is a member of the Massachusetts Bar. His experience has included several years on the staff of the Harvard Business School, two years as office manager of a large textile mill, and six years on the staff of the Massachusetts Institute of Technology where he is now Associate Professor of Accounting. He is co-author with Charles H. Porter of "Accounting," published in 1935. Mr. Fiske has served the Boston Chapter as Director of Publications, as Vice President, and as President, 1932-33.

Clinton W. Bennett is at present Director of Publications for our Boston Chapter. Following experience as a cost accountant in private industry, Mr. Bennett entered professional work in 1916 and his activities from that time until 1925 covered many phases of industry, commerce and finance. Then for four years he was General Manager of The Robert D. Mason Co., of Pawtucket, Rhode Island. He was for several years Supervising Cost Engineer with Cooley & Marvin of Boston and is now Manager of the Cost Accounting Division of that firm. Besides being a member of the N. A. C. A., Mr. Bennett is Member of the American Society of Mechanical Engineers, Member of the American Institute of Accountants, and a Fellow of the Massachusetts Society of Certified Public Accountants. He also holds the Degree of Bachelor of Laws from Hamilton College of Law and is a Certified Public Accountant of Massachusetts and New Hampshire.

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MAY 15, 1936

HATTIE HICKS SWEETS COMPANY*

Case Study of a Cost Plan for a Small Confectionery Plant

By Clinton W. Bennett, Manager, Cost Accounting Division, Cooley & Marvin, and Wyman P. Fiske, Associate and Professor of Accounting, Mass. Institute of Technology, Boston, Mass.

Introductory Note

THE following paper is based upon an actual case study made by the authors in a small confectionery plant in the metropolitan Boston area. The study was made with the belief that description of the development of a cost system for a small and relatively simple industrial plant would be of considerable interest to the membership of the Boston Chapter before whom the results were presented. It must be emphasized that the plant investigated was in no sense an ideal one. Very few plants could possibly be placed in that category. The more common and more important (numerically) plants are the small and medium-sized plants following only the average of practice in all phases of management. The operators of these enterprises cannot afford the refinements of management procedures and techniques, yet are fully as dependent upon a real control of the situation. Cost procedures designed for them must be simple and inexpensive to operate but nevertheless complete enough to provide a continuous flow of the essential accounting facts. Hence it was with definite intention that we selected the plant used for this study. A brief description of the products, manufacturing facilities, processes and present procedures of the Hattie Hicks Sweets Company should indicate the control problems faced by this typical, average enterprise.

Company Background

Products

The Hattie Hicks Sweets Company was founded in 1919 by Mr. Reuben Kraut to manufacture and distribute high-grade chocolate-coated confectionery. Mr. Kraut was experienced in both the manufacturing and selling ends of the candy business, for he had

* All names used in this description are fictitious.

been employed by the prior owners of the plant purchased by the new company and had once operated on his own account a retail candy shop. Although it was originally intended to produce only a single line of the highest grade chocolates, it was soon found that this policy would have to be changed in order to provide the company's salesmen and customers with a complete line. New items and packages were added from time to time until at present a list of products includes four lines of bulk goods with 75 different items, 34 standard one-pound assortments, 13 assortments of other than one-pound weight, 11 penny bars, and 4 lines of special packages totaling 36 items. There is thus a grand total of one hundred and sixty-nine standard packages. However, all these items and assortments consist of combinations of a much smaller number of items. Two grades of center material are used in the four main trade name divisions of the products. There are 15 different kinds of cream centers, three flavors of true fruit or liquid type centers, and three varieties of nougats. A line of hard candies is included as a service to the company's customers; in this field production is to order and there is no way in which the flavors used may be readily classified.

Manufacturing Facilities

The manufacturing processes are carried on in parts of four buildings all located in the same city block. One building (the main building) is owned by the company; additional floors in the three other buildings are rented. Both the owned and rented properties are of approximately the same age and although fairly old, are still in good condition and will not require major repairs for some time to come.

Most of the original equipment with which the company began business in 1919 is still in the plant. The present management (which assumed control about three years ago) has added to and modernized this equipment and has installed much in the way of handling and conveyor facilities. Some further improvements are planned as soon as business volumes and financial conditions will permit. While the general impression is that of an older plant obviously not designed as a show establishment, still the facilities appear quite adequate to handle the required production at a reasonable cost. Layout permits a smooth flow of production.

Manufacturing Processes

An approximate analysis of sales of product is shown below. Classification is upon the basis of production problems involved.

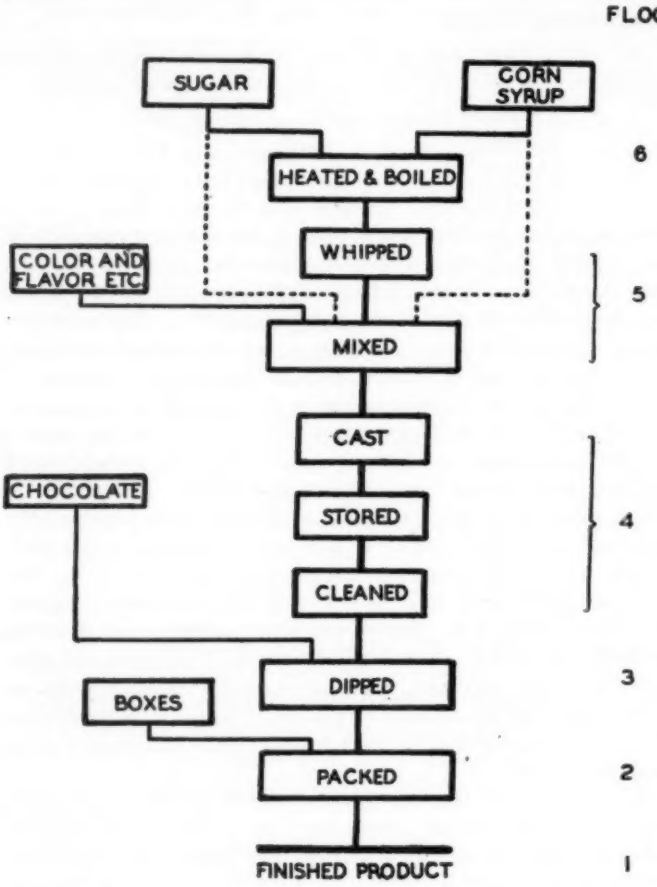
Chocolate Dipped Goods.....	80%
Caramels	10%
Hard Candies	6%
Penny Goods	4%

Because of this distribution, the plant is laid out primarily for the manufacture of chocolate-coated candies. Provision for all other lines is made in available space on the top floor of the main building. Cost allocations are thus greatly simplified. The manufacturing process for these side lines is not complicated, requiring merely boiling, cooling, cutting, and, in some cases, wrapping.

The first stage in the manufacture of dipped goods is the preparation of centers. With the exception of nougats, all centers have a fondant base. Sugar and corn syrup are mixed in kettles located in a corner of the top floor of the main building. The mixture is boiled down to a predetermined temperature and piped to the fifth floor (one floor down) to a whipping machine which compounds air into the syrup, producing unflavored fondant base. The whipped substance is next placed in kettles, also located on the fifth floor, where it is reheated and where coloring and flavoring materials are added. The resulting mix is then piped one floor down to casting machines, which automatically measure predetermined quantities into moulds of individual pieces. The moulds are formed in cornstarch in wooden trays of such construction as to facilitate storage.

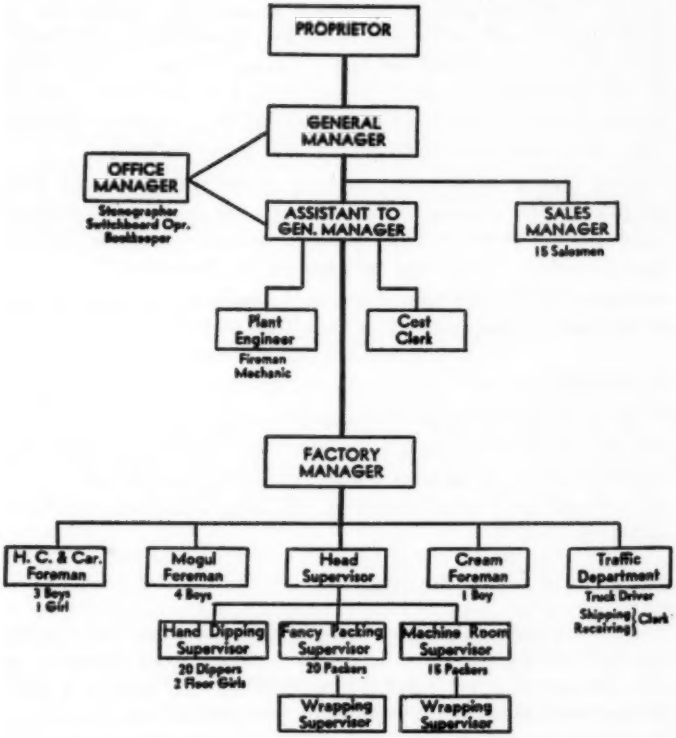
The cast centers must be stored under controlled temperatures and for definite periods before they are ready for the dippers. Storage much beyond the prescribed time delays the chemical reaction which produces the creamy consistency found in finished product. Storage space for this ageing is provided on the fourth floor adjacent to the casting machines. These machines are also designed to remove the hardened centers from the trays and clean them ready for dipping, while preparing the same trays for casting of a new lot.

The cleaned centers are conveyed without handling to the third floor and deposited in boxes to be carried to the dippers. Chocolate for dipping is heated to proper temperatures in one end of this



PROCESS FLOW DIAGRAM
CHOCOLATE COATED CENTERS

EXHIBIT I



ORGANIZATION CHART

EXHIBIT II

floor and delivered from this point to both hand dippers and the machine dipper on the same floor. The machine dipper or enrober is constructed and laid out in such a manner that centers can be fed at one end and will emerge from the machine into a cold packing room in an adjacent building. Packing is done directly from the conveyor belt into boxes. Filled boxes are carried by a belt to inspectors who put the tops on and thence to a wrapping machine from which they are directly placed in shipping cartons.

Hand dipped candies are conveyed on the trays on which they are placed after dipping to the packing room on the second floor. Here they are packed in fancy packages and sent, as is the machine dipped product, to the shipping room on the first floor.

A process flow diagram (Exhibit I), depicting the several steps of the process is reproduced on page 1068.

Organization

An organization chart (Exhibit II), requiring no further explanation is shown on page 1069. With the exception of a few low wage helpers the labor is all skilled. Hand dippers and fancy packers are paid on a piece-rate basis. All other employees are hired at hourly rates.

Procurement of Raw Materials

The company's requirements of corn syrup, sugar and dipping chocolate are purchased on long-term contracts with deliveries on call. Storage of these items is practically nil. As soon as a day's production is planned, the requirements of each are determined and the suppliers notified. Flavoring and coloring materials are necessarily purchased in advance and stored, since daily requirements are small. At the present time no inventory records are kept but when the cream foreman notices that his stock of any of these items is low he notifies the office which then makes out a purchase order to a previously selected supplier. Order points are based entirely on the foreman's judgment. The supply of cornstarch for use in the casting machine is regulated in the same manner. All goods are sent immediately to the department which requisitioned them where they are stored until required. There is no receiving department.

Production Control

Each day the orders received from the salesmen are routed first to the sales manager for credit approval and then to the assistant manager who plans production of the necessary items after check against a finished stock record. The cream foreman is given each morning a list of the products to be run. It is then left to him to have batches of center material ready at the scheduled time. Production is therefore practically to order, the only variation arising as a result of economic lot sizes. Less than two weeks' stock of finished goods is carried.

Factory Maintenance and Power

The organization chart of the company shows three employees in the factory maintenance department. These men attend to the necessary maintenance of plant and equipment.

The power supply of the company comes from two sources. A boiler supplies steam for heating, processing and operation of the refrigeration equipment. Before use for heating and processing, the steam passes through a reciprocating engine used to drive a generator of sufficient size to furnish the electric power requirements of the factory. In order to insure continuous refrigeration, a small electrically driven compressor unit is permanently connected to the local utility lines. A further connection for the supply of electricity for the whole plant is provided for use in case of an emergency shutdown in the company's power plant.

Present Accounting Structure

A list of the accounts now included in the ledger is shown below. It is obvious that these have developed without much attention to costs or control and are not adapted to such use.

Accounts Carried by the Hattie Hicks Sweets Company
Balance Sheet

Cash
Accounts Receivable
Accounts Payable
Notes Payable
Inventory
Machinery and Equipment
Exchanges

Investment (bank stock)
Capital Stock
Surplus

Manufacturing Accounts

Sales
Returns (Salable)
Sales Discounts (Cash)
Purchases
  Materials
  Boxes
  Packing Materials
  Miscellaneous
Freight Inbound
Purchase Discounts
Payroll
Commissions
Dividends Received
Bad Debt Salvage
Factory Expenses
Machine Expense and Maintenance
Light Heat and Power
Rent
Taxes
Cold Storage
Laundry
Office Expense
Telephone
Printing, Postage and Stationery
Interest and Bank Charges
Cost of Collections
Legal and Auditing
Insurance
Advertising
Travelling
Shipping Expense
Auto and Delivery
Freight Outward
Sales Returns (Unsalable)
Profit and Loss

Skeleton forms of balance sheet (Exhibit III) and income report (Exhibit IV) are also reproduced on following pages. They are included merely to complete the present picture since they are clearly inadequate.

Under the supervision of the assistant manager, who was brought into the organization with the change in management, cost figures have been compiled for all the company's products. These were determined as averages, taken over a considerable period of time, of the raw materials and labor costs for each item manufactured. An estimate was made of burden expense and this was distributed over the product with as much accuracy as was practical without a complete burden study. At the present time the only available method of controlling costs is by recomputing these costs for each batch produced and comparing results with those previously determined. A copy of each bill or invoice is sent to the cost department for this purpose.

Recommended Procedure

Objectives of Accounting Records

Consideration of the background of organization, volume and operating set-up pointed rather clearly to the objectives to be sought from the accounting function in this business. Obviously provision must be made for monthly statements. This will require either perpetual inventory control or a layout which permits monthly physical inventories. Each is recommended for different parts of the business. A satisfactory system must also develop unit cost figures as a basis for valuing inventories and for setting selling prices. The latter is of particular importance in view of probable addition of new items from time to time. Costs must be in sufficient detail as to variable and non-variable expense to permit intelligent price policies.

More important perhaps than the above objectives is the control of costs. Expenses must be kept within the limits assumed in setting selling prices; otherwise the proposed profit cannot be realized. Fortunately the problem is relatively simple in this case. Most burden and some labor costs are relatively fixed. In the dipping and packing rooms piece rates are in use. Control of material involves avoidance of spoilage and control of dipping. Existing pro-

HATTIE HICKS SWEETS COMPANY

Balance Sheet

ASSETS

CURRENT ASSETS:			
Cash		xx	
Accounts Receivable	xx		
Less: Reserve for Bad Debts	x	xx	
Investment		xx	
Inventories		xx	
Exchange		x	
Total Current Assets			xxx
REAL ESTATE ACCOUNT:			
Land and Buildings		xxxx	
Less: Mortgages Payable		xxx	
Total Real Estate			xxx
Machinery and Equipment		xxxx	
Less: Reserve for Depreciation		xxx	xxx
Deferred Charges (Insurance and Legal)			x
TOTAL ASSETS			xxxx

LIABILITIES AND CAPITAL STOCK

CURRENT LIABILITIES:		
Accounts Payable	x	
Notes Payable (Bank)	xx	
Notes Payable (General)	xx	
Accrued Interest	x	
Accrued Taxes	x	
Accrued Payroll	x	
Accrued Commissions	x	
Reserve for Sale Discounts	x	
Total Current Liabilities		xxx
Accounts Payable (Settlement)		x
Capital Stock	xxx	
Surplus	xx	xxx
TOTAL LIABILITIES AND NET WORTH		xxxx

EXHIBIT III

HATTIE HICKS SWEETS COMPANY

Profit and Loss Statement

Gross Sales		xxx	
Less: Sales Returns (Salable)	x		
Sales Discounts (Jobbers)	x	x	
Net Sales			xxx
Less: Cost of Goods Manufactured and Sold			
Purchases (Materials)	xx		
Purchases (Boxes)	x		
Purchases (Packing)	x		
Inventory (beginning)	xx		
Total Cost of Merchandise		xx	
Less: Purchase Discounts	x		
Inventory (end)	xx	xx	
Cost of Materials Used		x	
Direct Labor		x	
Cost of Goods Manufactured and Sold			xx
Gross Profit			xx
Add: Dividend Received			x
Total Profit			xx
Less: Expense			
Indirect Labor		x	
Administrative Salaries		x	
Sale Discounts		x	
Expense Purchases		x	
Freight Inward		x	
Store Salaries (Insurance Premiums)		x	
Commissions		x	
Factory Expense		x	
Machinery Maintenance		x	
Light, Heat and Power		x	
Rent		x	
Storage		x	
Laundry		x	
Towels		x	
Telephone and Telegrams		x	
Printing, Stationery and Supplies		x	
Interest and Bank Charges		x	
Collection Costs		x	
Legal and Auditing		x	
Insurance		x	
Advertising		x	
Travelling		x	
Shipping		x	
Auto and Delivery		x	
Freight Outward		x	
Sale Returns Unsalable		x	xx
Net Profit for Period			x

Exhibit IV

duction control includes tests of weight of chocolate added to different centers and so provides for control of this principal cost variant.

Approach

It might be well again to emphasize the fact that this was not a study of an ideal plant. The initial survey convinced the investigators that the business could not stand other than the barest essentials of cost control and no increase in clerical staff. Hence simplicity and economy of operation were prime considerations, although each of the previously stated objectives (monthly statements, product costs, and control of operations) was treated as a "must" in the program.

Following the preliminary study of the business and its local peculiarities, solution of the problem was sought in five steps:

1. Decision as to basic control plan or approach.
2. Development of chart of accounts.
3. Development of burden data.
4. Development of standard product costs.
5. Development of control information.

The logic of this attack can hardly be questioned, for it starts with choice of routes and proceeds to explore each step of the path chosen. Unless some such plan is followed, the investigator is almost certain to become so confused in the mass of detail with which he will find himself surrounded that he will run the danger of complete loss of perspective.

Control Plan

Early in the investigation it became obvious that the installation of a complete actual cost plan (on either the job or process approach) would be more or less futile. The large number of production orders, most of them calling for various assortments of the same pieces, could only result in a confusion of detail costs. Departments are small; operatives are few; and actual costs would involve a multiplicity of complicated reports consuming much time on the part of foremen. Further, a greatly increased clerical burden would be imposed upon the cost department.

The mass of detail to be handled suggested the use of standard costs as an economical means of meeting the situation. Standard costs, coupled with continuous overall controls through a group of cost variance accounts, would meet all the objectives. Under such a plan, control is sought first over totals and summarizations, and then works down through the details as inaccuracies or inconsistencies are shown up by the controls. This contrasts with some older procedures of working up through the details until refinements are completed and control accomplished. The new approach (applied generally in better installations, whether or not based on standard costs) was chosen in this case.

The standard cost plan selected is to be tied in with the financial accounts. This might appear to be an unnecessary complication. In fact it is possible to operate this plan without adding a single new clerk or a new material, labor or production report. Results are accomplished through the simple process of revising the accounting set-up and substituting adequate control procedure for the former statistical record-keeping. The tie-in automatically brings monthly summarizations to the management and affords a check on accuracy of records. Important inventory figures are developed for statement purposes.

Development of Chart of Accounts

A chart of accounts is a reflection of the accounting plan in use. That this is true is well illustrated by the chart of accounts currently in use by the Hattie Hicks Sweets Company; it obviously is based upon no well-thought out plan of control. A further example of the opposite type may be found in the practice of public accountants to take off a trial balance as the first step in a new audit engagement. The trial balance, revealing as it does the chart of accounts, shows the general accounting layout and gives the auditor a bird's-eye view of the structure he is examining. Hence in a systems engagement, development of the chart of accounts is an important early step to clarify the investigator's thinking, to tie together the various aspects of his plan, and to eliminate inconsistencies. The aim is coordination.

The chart of accounts developed for the enterprise studied is shown as Exhibit V. Reference to it will show that the accounts in the general ledger are first separated into three major groups:

CHART OF ACCOUNTS

	ASSETS					LIABILITIES					REVENUE AND EXPENSE				
	A CURRENT	B INVENTORY	C FIXED	D DEFERRED		E CURRENT	F FIXED	G RESERVES	H CAPITAL		J SALES DEPARTMENT	K EXPENSE PRODUCTION DEPARTMENT	L EXPENSE ADMINISTRATIVE DEPARTMENT	M OTHER INCOME AND EXPENSE	
1	Cash in Office	Cocoa Butter	Land		1	Payroll Accrued	Mortgage Payable	Reserve for Depreciation on Bldgs.	Capital Stock Common	1	Chocolate Goods Sales	Supt. and Foremen	Executive Salaries	Interest Received	1
2	Cash in Banks	Sugar	Buildings	Prepaid Interest	2	Notes Payable Banks		Buildings		2	Hard Candies Sales	Departl Indirect Labor	Office Salaries	Discounts Received	2
3		Chocolate	Machinery and Equipment		3	Notes Payable Other		Machinery and Equipment	Surplus	3		Power Plant Expense: Labor & Supplies	Telephone, Telegraph & Postage	Rents, Sales and Taxes	3
4		Fruits and Nuts			4					4	Returns & Allowances Chocolate Goods	Rent	Stationery and Office Supplies		4
5	Accounts Receivable Trade	Flavoring and Coloring			5	Accounts Payable Trade			Profit and Loss	5	Returns & Allowances N.C.A. C.	Freight & Transportation In	Legal and Accounting		5
6	Accounts Receivable Other		Office Furniture and Fixtures		6	Accounts Payable Other		Office Furniture and Fixtures		6		Maintenance: Labor & Mtrls.	Bad Debts	Interest Paid	6
7		Boxes Shells			7					7	Cost of Chocolate Goods Sales	Depreciation Machinery	Credits and Collections	Discounts Allowed	7
8		Cases and Cartons			8	Provision for Taxes				8	Cost of N.C.A. C. Sales	Power Plant: Labor & Supplies	Freight & Transp. Out		8
9		Supplies			9					9	Commercial Cost of Sales	Maintenance: Labor & Mtrls.		Federal Income Taxes	9
10					10					10		Miscellaneous Factory Materials	Sales Salaries		10
11				Unexpired Insurance	11	Taxes Accrued				11		Social Security Taxes	Sales Commissions		11
12					12				Material Cost Variances	12		Depreciation: Office and Other	Traveling Expense		12
13		Work in Process			13				Labor Cost Variances	13		Total Static and Cap'l Stock Tax	Advertising		13
14					14				Factory Burden Cost Variances	14		Depreciation	Sales Supplies and Expenses		14
15					15				Commercial Burden Cost Variances	15		Factory Burden Clearing Account	Commercial Burden Clearing Account		15

HAYES HICKS SWEETS COMPANY

EXHIBIT V

1—Assets
2—Liabilities
3—Revenue and Expense

These three groups are subdivided into the following:

1—Assets:
A—Current
B—Inventory
C—Fixed
D—Deferred
2—Liabilities:
E—Current
F—Fixed
G—Reserves
H—Capital
3—Revenue and Expense:
J—Sales, Deductions, Costs
K—Factory Burden
L—Commercial Burden
M—Other Income and Charges

The accounts are arranged in the ledger in the order shown on the chart and each is symbolized by a combination of the column heading and the line number, for example, A-1 Cash in Office. Thus the chart becomes an index to the ledger.

Examination of the list of accounts will reveal few accounts of a purely cost nature. This is deliberate. Fundamentally, the accounts in the ledger should be sufficiently exhaustive to provide control over all phases of the business, yet remain practically as simple in operation as would be the case if only a commercial system of bookkeeping were in use. To accomplish this, it is merely necessary that, in addition to logical physical arrangement of the accounts in the ledger, provision be made for three basic classes of accounts, namely:

1—Continuous Inventory Controlling Accounts
2—Cost Variance Accounts
3—Burden Clearing Accounts

Reference to the chart of accounts will show that the inventory accounts are provided for in the "B" column, the variance ac-

counts in column "H," and the clearing accounts in K-15 and L-15. With these controls and the other accounts set forth on the chart of accounts in operation, all subsidiary cost data can best be compiled and maintained on statistical sheets without burdening the accounts. Explanation of the use of each of the three classes of accounts will be made at appropriate points in the discussion that follows.

Development of Burden Data

Two phases of the burden problem required attention: the application of burden to the product as a basis for the development of standards, and the current treatment in the accounts. Although neither phase presented great difficulties, a careful study of the first was essential to the development of satisfactory standards.

In the case under consideration, it was decided to separate the burden into two divisions of factory and commercial. The burden accounts determined upon for each class are shown in columns K and L of the chart of accounts. Furthermore, it was decided to apply factory burden as a percentage of direct labor while commercial burden will be absorbed as a percentage of total factory cost of sales. Following these decisions the question logically arises as to how finely the factory burden shall be broken down. In other words shall it be applied as a flat rate for the entire factory or shall separate rates be set up for each department. Study showed that in this plant there are three manufacturing factors which make a flat rate inadvisable. First, the product is composed of chocolate coated goods and hard candies and caramels. These two classes of product pass through entirely different operations. Hence a division of burden between these two basic products is essential. Next, while the chocolate-coated goods practically speaking all pass through uniform basic operations, some of them are hand-dipped and packed while others are machine-dipped and packed. Here again cost variations of substantial proportions may arise. It was therefore decided to develop the following four factory burden rates:

1—Making
2—Hand Dip and Pack
3—Machine Dip and Pack
4—Hard Candies and Caramels

Under this plan, all chocolate-coated goods will carry the making burden rate and in addition either the hand dip and pack or machine dip and pack rate, depending upon the physical situation in a given case. All hard candies and caramels will carry the burden rate for that type of product only.

With the burden plan decided upon, it becomes necessary to set up the factory burden budget and develop the resulting burden rates for each of the centers of burden application. Exhibit VI illustrates this step. At the left of this form is entered each of the burden accounts shown in column K of the chart of accounts. For information purposes only, it may also be desirable to insert the actual expenses for the prior year. The important step, however, is to determine the budget for the coming year. Not infrequently these figures are set up on a 50-50 basis, half fact and half fancy, the fact relating to what has previously happened and the fancy reflecting the rosy dreams of the management for the glowing days that are just ahead. However, it is the job of the cost accountant to cull out of these conflicting pictures a reasonable burden budget. The problem of distributing these figures to burden application centers follows. Exhibit VI shows suggested bases in each instance.

Items that cannot be properly applied to burden centers directly are placed in the general factory column and then distributed as a single amount on the basis of total payroll. Finally the total burden for each center is added up. Dividing these results by the budgeted direct labor produces the burden rates to apply to the direct labor cost of all products passing through these centers.

Development of commercial burden involves all of the problems incident to the factory burden except that no division by products was felt to be essential or advisable in this particular instance. It is therefore only necessary to determine the total budgeted commercial burden and the budgeted factory cost of sales. Dividing the former by the latter will produce the commercial burden rate to apply to the total calculated factory cost of any given product.

Although a departmental distribution of factory burden is essential to the determination of accurate product costs, the plan does not contemplate routine distributions of burden amounts to the several departments. It is the opinion of the investigators that better control of factory expense will result from retaining the

HATTIE HICKS SWEETS COMPANY

FACTORY BURDEN BUDGET

Year 1936

A/c Symbol	Name	Actual Last Year	Budget This Year	Basis of Distribution	Burden Application Centers: Making	Hand Dip & Pack	Machine Dip & Pack	Make Candies & Caramels	General Factory
K1	Supt. and Foremen	$.	$.	Foremen-Direct to Centers Supt.-Total Factory Payroll	$.	$.	$.	$.	$.
K2	Dep't'l Indirect Labor	.	.	Direct to Centers-otherwise to Gen.Factory	.	.	.	.	
K3	Power Plant-Labor	.	.	Heat-floor space.Power-Equalized					
	-Supplies and Expense	.	.	H.P.Used. Lights-Equalized Watts	.	.	.	.	.
				Service Steam & Refrigeration-Standards					
K4	Rent	.	.	Floor space	.	.	.	.	.
K5	Freight and Transp. In	.	.	To General Factory					.
K6	Maintenance-Labor	.	.	Direct where possible. Otherwise	.	.	.	.	.
	-Supplies and Expense	.	.	Bldg.Charges-floor space and					
				Machinery Chgs.-Mchy.Valuation.					
K7	General Supplies and Expense	.	.	Direct to Centers and General Factory	.	.	.	.	.
K8	Shipping-Labor	.	.	To General Factory					.
	-Supplies and Expense	.	.						
K9	Trucking-Labor	.	.	To General Factory					.
	-Supplies and Expense	.	.						
K10	Starch and Sundry Materials	.	.	Direct to Centers and General Factory	.	.	.	.	.
K11	Social Security Taxes	.	.	Total Payroll	.	.	.	.	
K12	Insurance-Liability	.	.	Total Payroll	.	.	.	.	
	-Fire and Other	.	.	Land and Buildings-floor space	.	.	.	.	
K13	Local, State and Capital Stock Tax	.	.	Machinery-Valuation	.	.	.	.	
K14	Depreciation	.	.		.	.	.	.	
	Total	.	.		.	.	.	.	.
	Dist.of General Factory			Total Payroll in Centers	.	.	.	.	
	Total Burden	.	.		.	.	.	.	
	Direct Labor	.	.	From Payroll Analysis	.	.	.	.	
	Burden Rates-Actual	.	.		.	.	.	.	
	-Budget	.	.		.	.	.	.	

EXHIBIT VI

totals undistributed. The treatment of burden in the accounts will be discussed in detail at a later point.

Development of the Standard Product Costs

The standard product costs will be determined on the basis of a series of test runs. Initially each and every item in the line will have to be studied in one or more tests. Having once been set up they will only be changed as fundamental cost conditions change (assuming, of course, that they were carefully and accurately developed in the first place); beyond the occasional tests of new products and rechecks on old items, no attention will be given to so-called actual or job order costs.

For the accumulation of the costs of test runs two forms of cost sheets are provided. The first is designed to develop the costs of hard candies, of caramels, of the various flavors and grades of centers and of bulk packed dipped goods; it is illustrated here as Exhibit VII. The second cost sheet is intended for assorted packages. On it can be determined more readily than on the other form the cost of the assortment of centers going into the completed product. It is reproduced as Exhibit VIII.

Both costs sheets accumulate material, labor and factory burden totals without allowing them to become mixed. This is important for the making of routine periodic cost entries. Both provide for the inclusion, in the case of sale goods, of commercial expense, of interest and discounts, and of standard profit. All unit costs are in terms of pounds rather than of packages which vary in content weight.

Prior to the preparation of the cost accounting plan described in this paper, the plant in question obtained production and labor reports of center production and of goods packed both by hand and by machine. No additional labor reports are required under the new procedure. Reports of materials used will be required for each of the test runs. In this industry material and labor costs should be available with a substantial degree of accuracy and with these amounts it becomes simply a matter of clerical routine to make the entries on the cost sheets and compute burden allowances. No problems of particular difficulty are present.

HATTIE HICKS SWEETS COMPANY

COST SHEET—Date

(Centers and bulk packages)

Product.....

	Costs are per Pound		
	Quantity	*Price*	*Amount*
MATERIAL:			
Corn Syrup	$.	$.	$.
Sugar	.	.	.
Chocolate	.	.	.
Fruits and Nuts	.	.	.
Flavoring and Coloring	.	.	.
Total Material			.
% Waste			.
Total Material			$.

	Labor			*Burden*	
	Hours	@	*Amount*	*Rate*	*Amount*
LABOR AND BURDEN:					
Heating and Boiling			$.		$.
Whipping and Mixing			.		.
Coating			.		.
Mix Coating			.		.
Hand Dipping			.		.
Hand Packing			.		.
Machine Dipping			.		.
Machine Packing			.		.
Sub-total			$.		$.
% Waste			.		.
Cartoning			.		.
Total Labor and Burden			$.		$.
Boxes and Labels			$.		$.
Cases and Cartons			.		.
Material as above			.		.
Total Material Cost			$.		$.
Total Factory Cost			.		.
Commercial Expense			.		.
Interest and Discounts			.		.
Total Cost per Pound.			$.		$.
Total Cost per Unit			$.		$.
Selling Price			.		.
Profit			$.		$.

EXHIBIT VII

HATTIE HICKS SWEETS COMPANY

COST SHEET

(Packaged Assortment)

CENTERS:	*Standard Costs* *Material*	*Labor*	*Burden*	*Total*
	$.	$.	$.	$.
(These amounts will be transferred from Center Cost Sheets)				
Sub-total	$.	$.	$.	$.
% Waste	.	.	.	.
Total Cost of Centers	$.	$.	$.	$.
Dipping Chocolate	.	.	.	.
Other Materials	.	.	.	.
Total Materials	$.	$.	$.	$.

LABOR AND BURDEN:	*Labor* *Hours* @	*Amount*	*Burden* *Rate*	*Amount*
Mix Coating			$.	$.
Hand Dipping			.	.
Hand Packing			.	.
Machine Dipping			.	.
Machine Packing			.	.
Sub-total			$.	$.
% Waste			.	.
Cartoning			.	.
Total Labor and Burden			$.	.
Boxes and Labels			$.	$.
Cases and Cartons			.	.
Material as above			.	.
Total Material Cost			$.	$.
Total Factory Cost			.	.
Commercial Expense			.	.
Interest and Discounts			.	.
Total Cost per Pound			$.	$.
Total Cost per Unit			$.	$.
Selling Price			.	.
Profit			$.	$.

EXHIBIT VIII

Development of Control Facts—Material

Seven raw material and supplies inventory accounts are set forth in column B of the chart of accounts:

B-1—Corn Syrup
B-2—Sugar
B-3—Chocolate
B-4—Fruits and Nuts
B-5—Flavoring and Coloring
B-7—Boxes and Labels
B-8—Cases and Cartons
B-9—Supplies

All of these materials except supplies (B-9) are treated as direct materials in developing the standard costs on the cost sheets. It is therefore necessary to determine the quantities of these materials used each month. Although the use of perpetual inventories was carefully considered, it is believed that in this plant the information can best be obtained by monthly physical inventories. The quantities of each item are small and with proper physical stores arrangements these monthly inventories will not be difficult, nor will they require much time or effort. The total amounts shown to have been consumed during the month will be credited to each of the accounts B-1 through B-8 with an offsetting debit to H-12, material cost variances account.

The supplies account B-9 will reflect only a normal inventory and all purchases of this class of items normally will be currently charged to expense. The only exception will arise in the case of a very abnormal purchase, in which instances the purchase will be set up as inventory and then charged off quickly. This eliminates the necessity of attempting the task of inventorying supplies.

Credits to the account H-12, Material Cost Variances, will be for the standard material cost of production transferred to finished stores. The debit will be to B-13, Work in Process, which will in turn be credited for cost of goods sold. The single Work in Process will include both in-process and finished inventories. The former of these will be unimportant, consisting only of centers stored for ageing (never over one day's requirements) and hand-dipped goods as yet unpacked.

As a basis for credits to Material Cost Variances it will be necessary to determine the standard cost of materials used. For this purpose it might appear most logical to use the daily production orders issued to the cream foreman. The actual decision, on the contrary, was to use the daily reports of goods dipped and packed. The use of a series of work-in-process accounts, one for each stage in the process, was ruled out as unnecessarily complicated and of little value since the inventories are unimportant in amount. Charging of materials to Work in Process on the basis of production orders would produce two classes of error of probably greater amount than the use of reports of goods dipped and packed. These would be errors due to variations in candy produced and variations from standard in quantity of material required for the actual production. Use of reports of goods packed would eliminate the first and leave the second in Material Variances rather than Work in Process. An offsetting error would be due to changes in the centers in storage, but it is felt to be less important.

The reports of goods dipped and packed will be summarized and analyzed in terms of the standard quantities of the several materials and supplies required. The total will be credited to Material Variances and debited to Work in Process. The balance of Material Variances will show the variation of material costs from standard and may, if the amount is significant, be analyzed in terms of individual inventory accounts.

Labor Cost Control

When the payroll analysis has been prepared for the month showing the total payroll both direct and indirect and whether paid or accrued, according to centers of burden application, the total will be credited to E-1, Payroll Accrued. The direct labor portion will be debited to H-13, Labor Cost Variances while the indirect portion will be charged to the apropriate accounts in the burden classification of the ledger. Payrolls actually paid will be charged to E-1, Payroll Accrued.

The production (from reports of goods dipped and packed) for the month will be summarized by the three major classes of hand dip and pack, machine dip and pack and hard candies and caramels. This production will be priced at the standard labor cost reflected on the standard costs sheets and will cover all labor up to the car-

toning. The cartoning production will also be costed at the standard labor cost of that operation. The sum of this standard labor cost of production for the month will be credited to H-13, Labor Cost Variances with an offsetting debit to B-13, Work in Process.

In determining upon these figures, the cost accountant on the job should give the necessary consideration to any unusual fluctuations in the approximate inventory of goods in the packing departments in order that his labor absorbed will be a true and not a misleading figure. As previously stated, much of the labor in this plant is on piece work. Furthermore, daily production reports are in use which provide an effective and continuous statistical labor control.

Burden Cost Control

At the end of each month the sum of all the balances in accounts K-1 through K-14 will be credited to K-15, Factory Burden Clearing account with an offsetting debit to H-14, Factory Burden Cost Variances. This has the effect of placing the actual factory burden for the month in the variances account without closing a single burden account. Then the total direct labor for the month as classified by burden application centers in accordance with the previously described direct labor breakdown, will be priced at standard burden rates as set forth on the factory burden budget, Exhibit VI. In this way the total standard burden cost for the month will be obtained. This latter will then be credited to H-14, Factory Burden Cost Variances account and debited to B-13, Work in Process.

Total actual commercial burden for the month as set forth in accounts L-1 through L-14 will be credited to L-15, Commercial Burden Clearing Account with an offsetting charge to H-15, Commercial Burden Cost Variances. The total standard factory cost of sales for the month (described later) multiplied by the standard commercial burden rate will reflect the standard cost of commercial burden for the month and this will be credited to H-15, Commercial Burden Cost Variances with an offsetting debit to J-9, Commercial Cost of Sales. Under the recommended plan, no commercial burden is allowed to find its way into inventories but is absorbed directly in cost of sales.

The several actual burden accounts will only be closed to the clearing accounts at the close of the year or other fiscal period.

Work in Process and Cost of Sales

From the foregoing it is seen that the work in process account has been charged with material, direct labor and factory burden used during the month at standard costs. This account is cleared of the goods sold by pricing the sales for the month at standard factory cost as shown by the cost sheets. The resulting figure will represent the standard factory cost of sales and will be credited to B-13, Work in Process, with offsetting debits to J-7, Cost of Chocolate Goods Sales and J-8, Cost of Hard Candies and Caramel Sales. As a result, the work in process account will reflect the goods in process and finished at standard factory cost; the cost of sales accounts will reflect the cost of sales for the month at standard cost as shown by the cost sheets; the differences that may have arisen between these standard costs and the actual performances will appear in the cost variances accounts. Under the recommended plan, cost variances are not considered as part of cost, neither are they treated as deferred charges as sometimes is done. The standard cost is considered to represent the real cost and the variances reflect efficiency gains or losses from this real cost. Consequently cost variances are taken up each month on the profit and loss statement and at the end of the year these account balances will be closed directly into profit and loss.

Monthly Statements

Too much emphasis is frequently placed on the importance of certain monthly statements. As a result, the business man is often deluged with a mass of figures that he cannot comprehend and that are of small value to him. Monthly statements like rare wine should be taken in proper moderation. For control purposes two statements are considered fundamental—the monthly profit and loss and the monthly burden statement. These are shown in Exhibits IX and X respectively. The profit and loss statement reflects clearly three fundamental requirements: the profit that should have been made, the profit actually made, and the reasons for the difference. This is the type of profit and loss statement that really talks to the management. It presents a definite basis of measure-

HATTIE HICKS SWEETS COMPANY

MONTHLY PROFIT AND LOSS STATEMENT

1936

A/c Symbol	*Name*	*March*	*3 Months to Date*
J1	Chocolate Goods Sales	$.	$.
J2	Hard Candies and Caramels Sales	.	.
	Total Sales	.	.
	Returns and Allowances:		
J4	Chocolate Goods	.	.
J5	Hard Candies and Caramels	.	.
	Total Deductions	.	.
	Net Sales	.	.
	Cost of Sales:		
J7	Chocolate Goods	.	.
J8	Hard Candies and Caramels	.	.
J9	Commercial	.	.
	Total Standard Cost of Sales	.	.
	Anticipated Operating Profit	.	.
	Cost Variances:		
H12	Material	.	.
H13	Labor	.	.
H14	Factory Burden	.	.
H15	Commercial Burden	.	.
	Total Cost Variances	.	.
	Actual Operating Profit	.	.
	Other Income:		
M1	Interest Received	.	.
M2	Discounts Received	.	.
M3	Sundry Sales and Income	.	.
	Total Other Income	.	.
	Operating Profit and Other Income	.	.
	Other Charges:		
M6	Interest Paid	.	.
M7	Discounts Allowed	.	.
M9	Federal Income Taxes	.	.
	Total Other Charges	.	.
	Net Profit	$.	$.
	Interest Paid and Discount Allowed to Factory Cost of Sales %	.	.

EXHIBIT IX

HATTIE HICKS SWEETS COMPANY

MONTHLY BURDEN STATEMENT

	FACTORY:	*This Month*	*A Year Ago*	*This Year to Date*	*Last Year*
K1	Supt. and Foremen.....	$.	$.	$.	$.
K2	Dep't'l Indirect Labor....	.	.	.	.
K3	Power Plant—Labor.....	.	.	.	.
	Supplies and Expense..	.	.	.	.
K4	Rent	.	.	.	.
K5	Freight and Transp. In...	.	.	.	.
K6	Maintenance—Labor	.	.	.	.
	Supplies and Expense..	.	.	.	.
K7	General Supplies and Expense	.	.	.	.
K8	Shipping—Labor	.	.	.	.
	Supplies and Expense..	.	.	.	.
K9	Trucking—Labor	.	.	.	.
	Supplies and Expense..	.	.	.	.
K10	Starch and Sundry Materials	.	.	.	.
K11	Social Security Taxes....	.	.	.	.
K12	Insurance—Liability	.	.	.	.
	Fire and Other.....	.	.	.	.
K13	Local, State and Capital Stock Tax	.	.	.	.
K14	Depreciation	.	.	.	.
	Total Factory Burden..	.	.	.	.
H13	Direct Labor	.	.	.	.
	Burden Rate	.	.	.	.
	COMMERCIAL:				
L1	Executive Salaries	$.	$.	$.	$.
L2	Office Salaries	.	.	.	.
L3	Tel., Tel. and Postage...	.	.	.	.
L4	Staty., Supplies and Expense	.	.	.	.
L5	Legal and Accounting....	.	.	.	.
L6	Bad Debts	.	.	.	.
L7	Credits and Collections...	.	.	.	.
L8	Freight and Transport. Out	.	.	.	.
L10	Sales Salaries	.	.	.	.
L11	Sales Commissions	.	.	.	.
L12	Traveling Expense	.	.	.	.
L13	Advertising	.	.	.	.
L14	Sales Supplies and Expense	.	.	.	.
	Total Commercial Burden	.	.	.	.
J7-8	Factory Cost of Sales....	.	.	.	.
	Burden Rate	.	.	.	.

EXHIBIT X

ment of operations. It would be possible in this business to take a physical inventory of work in process and finished goods each month and as a result obtain a monthly profit and loss. But this would simply reflect post mortems. To achieve real value, the profit and loss statement must be coordinated with the cost figures that are used in considering the cost of a pound of candy.

The burden statement shown in Exhibit X provides a valuable statistical record of how expenses are being controlled for the month and for the year to date.

The plan of accounting and cost control reported upon provides the data necessary for the preparation of any reasonable periodic reports which the management may desire. Perhaps a balance sheet may be wanted. If so it is simply necessary to record all balances reflected in the accounts in columns A through H of the chart. A monthly balance sheet seldom possesses real value for the average executive. What he should have instead is a working capital statement showing his budgeted position three months ahead and his position today. A statement of this sort is fundamental but does not require a cost accounting plan to provide it. Hence its description is omitted.

Conclusion

The case in question furnishes an interesting example of the practical value of standard costs in a small concern which manufactures a fairly complicated and broad line of products. In this particular plant it would be impossible to obtain accurate costs on the entire range of products by any other method and still keep clerical expense within proper limits. Although the clerical staff maintained by this company is a minimum, it will be possible to operate the entire new plan and obtain its beneficial results without any increase in this direction.

After the new methods have been in effect long enough to be thoroughly understood by the organization, thought should be devoted to the question of placing all activities on a budgeted basis. When this time arrives, the basic plan as reported upon herewith will be found to completely harmonize with this procedure and will provide all the machinery for controlling the budgetary operations.

Undoubtedly the accounting technician can and will find things to criticize in this recommended plan. In answer, let it be said that

the first consideration has been to provide the executives of this business with a continuous picture of costs and operating results at the minimum of outlay. That is the first and great job of the cost accountant. The second job is to adopt the best accounting technique that is possible in the given situation. It is felt that the recommended plan thoroughly meets these two fundamental demands.

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